

MISSION NEED STATEMENT
FOR AN
EXPEDITIONARY FIRE SUPPORT SYSTEM (EFSS)
(NO. MOB 47)
Potential ACAT III

1. Defense Planning Guidance Element. This Mission Need Statement (MNS) responds to Parts I and II of the Defense Planning Guidance Update dated April 1999, which requires a defense strategy for pursuing a focused modernization effort and requires U.S. forces to develop and maintain dominant maneuver capabilities.¹ This will require the Marine Corps to replace aging equipment with modern equipment that provides capabilities relevant to the concept of operations. The concept of Expeditionary Maneuver Warfare (EMW) embraces the guidance of dominant maneuver requiring lighter, more agile, more lethal forces capable of responding to a wide range of crises.² This MNS also responds to Mission Area Analysis (MAA) 24, Fire Support, dated 13 March 1996 and to the Quad Division Fire Support Proposal, dated 10 January 2000, that stated a need for a range of indirect fire support platforms to support the full spectrum of missions expected of the Marine Corps.

¹ Defense Planning Guidance, FY 2002-2007 (U), April 2000. pp 99-100, 119-120

² United States Marine Corps Warfighting Concepts for the 21st Century, Concepts Division, Marine Corps Combat Development Command, p. I-11.

2. Mission and Threat Analyses

a. Mission

(1) EFSS-equipped units will provide all-weather, ground-based, close supporting, accurate, immediately responsive, and lethal indirect fires in support of the MAGTF. EFSS will be capable of successfully engaging a spectrum of potential point and area targets, including motorized, light armored, and dismounted personnel targets, command and control systems, and indirect fire systems. Accuracy throughout the effective range of the system must be maximized and inherent system error minimized to ensure efficient munitions management and minimize collateral damage. EFSS fires will disrupt, degrade, or destroy as much of the threat force capabilities as possible prior to the initiation of the direct fire engagement and provide accurate, lethal, close-in fires throughout the duration of the engagement.

(2) As a critical element of the ground fires triad (EIFGSWS, XM777, EFSS) EFSS will afford the MAGTF commander increased flexibility in tailoring his fire support systems to support the scheme of maneuver. EFSS-equipped units will be especially well suited for missions requiring speed, tactical agility, and vertical transportability. The EFSS design and configuration will ensure that its tactical mobility, both in the air and on the ground, is equal to the supported force.

(3) EFSS will be the principle indirect fire support system for the vertical assault element of a Ship to Objective Maneuver (STOM) force (notionally a Regimental Landing Team (RLT(-)(Rein)) and as friendly forces converge, it will be integrated into the MAGTF's overall fire support plan.

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b. Threat. The threat is documented in the Marine Corps Midrange Threat Estimate - 1997-2007: "Finding Order in Chaos", published by the Marine Corps Intelligence Agency, dated August 1997. The threat will use both active and passive countermeasures against the vertical assault element forces and its supporting fire support systems. These countermeasures include camouflage and concealment, reconnaissance, surveillance, targeting and acquisition systems, obscurants, direct and indirect fire weapons systems, NBC agents, optical countermeasures, directed energy weapons (DEW), thermal and image intensification night sights, laser warning systems, active/reactive protection systems, offensive information operations systems, and thermal radiation reduction devices. Primary threat systems will include enemy motorized and light armored vehicles, mounted and dismounted infantry, crew served and shoulder fired antitank weapons (guided and unguided), indirect fires, mines, and combat aircraft (rotary and fixed-wing).

c. Shortfalls of Existing Systems. The principle shortfalls of existing ground-based indirect fire support systems are: the lack of tactical mobility, battlefield agility, responsiveness, and the measured lethality required to support the full spectrum of operations expected of the Marine Corps. Currently, the Ground Combat Elements (GCEs) of all of the Marine Air Ground Task Forces (MAGTFs), except certain special purpose MAGTFs, are supported by the M224, 60mm mortar at the infantry company and the M252, 81mm mortar at the infantry battalion level. Neither of the mortars have the range nor lethality to provide adequate fire support beyond their current mission requirements. M198, 155mm towed howitzer-equipped battalions provide direct and general support fires for the Marine Expeditionary Unit (MEU), the infantry regiment, and the infantry division. The M198 howitzer will be replaced by the XM777 Lightweight 155mm towed howitzer beginning in FY04. The Towed Artillery Digitization (TAD) equipped XM777, in combination with new munitions, will significantly enhance the combat capabilities of the MAGTF by providing a weapon system with increased range, greater lethality, improved mobility, and a reduced organizational footprint. The XM777 will be capable of being externally transported by the MV-22, however, a second MV-22 will be required to transport the howitzer crew and a limited ammunition supply. The most significant limitation of the XM777 is its lack of ground mobility when supporting a vertical assault element because its prime mover, the MTVR, is not air transportable for the distances required by the force. Long range, division and above level fires are being addressed through the program to field an Expeditionary Indirect Fire General Support Weapon System (EIFGSWS). Additional fires are provided to the MAGTF by aviation and naval surface fires. Current and developmental naval surface fires will not provide a cost effective means of supporting the vertical assault element nor extended inland maneuver forces with fires of the duration or volume required by ground elements in contact with enemy forces. The principal limitations of aviation fires are long-term responsiveness (immediate response coupled with sustained and continuous fires), weather, and duration of fires over a broad front.

d. Timing and Priority

- (1) An Initial Operational Capability of FY06 is required.
- (2) A Full Operational Capability of FY08 is desired.

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(3) This is a critical enabler of Marine Corps Strategy 21..

3. Non-materiel Alternatives. Modification of present doctrine, tactics, training, or organization will not significantly provide a non-materiel alternative to this mission need in the 2010 to 2025 timeframe. To meet operational requirements, new concepts must be developed to optimize expanded capabilities. Future missions clearly require a weapon; crew; advanced fire control; command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) system; munitions; resupply system; and associated support equipment that when aggregated together, provide a highly responsive, survivable, accurate and lethal indirect fire system to provide the fire support that maneuver requires.

4. Potential Materiel Alternatives

a. Product Improvement Program. Product improvements to the currently fielded M252, 81mm mortar, to include its ammunition shall be considered.

b. Commercial and/or Non-developmental Approach. Commercially available or non-developmental equipment could be procured. The M120 Towed 120mm mortar is a potential candidate for a material solution.

c. Research and Development (R&D). An R&D effort, that may include development of the launcher, prime mover, and ammunition, could be initiated.

d. Science and Technology (S&T) Initiatives. S&T initiatives should be assessed for their maturity. Specifically, the Office of Naval Research initiative for the Joint Warfighting Counterfire System (JWCS) and the Marine Corps Warfighting Lab initiative for the Mobile Fire Support System (MFSS) are potential candidates for a material solution.

e. Other Service Program. The Marine Corps could participate in a Joint Service program. Specifically, the US Army program for a Future Direct Support Weapon System (FDSWS) is a potential candidate for a material solution.

f. Allied Cooperation. The potential exists for participation with allied partners in the development of a material solution.

5. Constraints

a. Logistics Support. The EFSS must be supportable with the existing three levels and five echelons of maintenance. To the maximum extent possible, general support test equipment and common tools resident in the Marine Corps inventory will be used to perform all authorized levels of maintenance. Tools and test equipment required, but not organic to the Marine Corps inventory, will be identified as special tools and special test equipment and will be the responsibility of the Program Manager.

b. Mobility and Transportation. The EFSS must be transportable by sea, air, or land without special preparation. Its mobility in tactical operations must be equal to that of the supported maneuver forces. The EFSS weight and size must permit the complete system (launcher, mobility platform, basic load

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of ammunition, and crew) to be transported internally by the same type of aircraft as the maneuver force and not incur flight restrictions beyond those imposed on the maneuver force. The EFSS shall also be capable of being externally transported by the same type of aircraft as the maneuver force. Once on the ground, the EFSS shall immediately have sufficient mobility to provide uninterrupted fires to the supported force.

c. Manpower, Personnel, and Training. As an additive capability the EFSS may require additional resources. The impact on manpower, personnel, and training must be assessed as part of the development of any material solution.

d. Command, Control, Communications, and Intelligence (C4I) Interface. The EFSS must be interoperable with the Advanced Field Artillery Tactical Data (AFATDS) and its developmental replacement through the Naval/Marine Corps tactical fire support communication networks existing when it is deployed.

e. Standardization and Interoperability. The EFSS must be:

- (1) Designed to meet approved joint standards for interoperability.
- (2) Compliant with applicable information technology standards in the Department of Defense (DoD) Joint Technical Architecture.
- (3) Interoperable with the MAGTF fire support command and control system.
- (4) Compatible with North Atlantic Treaty Organization (NATO) munitions to the maximum extent possible without degrading mission requirements.

f. Security. The EFSS must comply with current requirements and be capable of evolving to meet state-of-the-art technological advances designed to protect information from unwanted exploitation as imposed by national, DoD, and joint policy. It must be protected from an Information Systems Security perspective, which would include, but not be limited to, such services as confidentiality, availability, and integrity of information that is processed, stored, or transmitted. Unique munition and platform security measures shall be minimized.

g. Operational Environment

(1) Weather and Terrain. The EFSS must be operational and maintainable in all types of climate and terrain where Marines deploy.

(2) Nuclear, Biological, and Chemical (NBC). Nuclear hardening is not required; however, the EFSS must be functional in a NBC environment. Personnel must be capable of operating the EFSS while wearing NBC mission oriented protective posture IV equipment and over-garments.

(3) Electromagnetic Environmental Effects. Hardening against the effects of electromagnetic pulse is not required. The EFSS must operate compatibly with other systems in the battlefield electromagnetic environment.

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h. Insensitive Munitions. Munitions used in this system must be designed to resist threats (unplanned stimuli) to insensitive munitions.

6. Joint Potential Designator. Joint Interest.